SEQUENCE LISTING

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<170>	> Paten	tIn V	ers.	2.0)					. •					
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	Pro Glu														
1			5					10					15		
									•						
	atc gcc														96
Ala I	Ile Ala		GIY	Leu	lyr	Leu		Thr	Ala	Arg	Gly		GIn	Ser	
		20					25					30		•	
tca c	gat tcc	ata	acc	aac	acc	tac	gac	caa	taa	aca	σaσ	gac	aac	att	144
	Asp Ser														
	35					40	_		_		45	-	_		
ttg g	gaa tat	tac	tgg	ggc	gac	cat	atc	cac	ctc	ggc	cat	tat	ggc	gat	192
Leu G	Glu Tyr	Tyr	Trp	Gly	Asp	His	Ile	His	Leu	_	His	Tyr	Gly	Asp	
	50				55					60					
CC4 6	cca gtg	acc	227	ast.	++~	atc	Caa	t c ~	222	a++	ast.	+++	ata	cat	240
	Pro Val	_	_	_				_			_		_		240
65	LLO VAI	ALG	دير	70	1116	116	9111	Ser	75	TT6	rap	1116	vaı	80	
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gcc a	atg gcc	cag	tgg	ggc	gga	tta	gat	aca	ctt	ccc	ccc	ggc	aca	acg	288

Ala Met Ala Gln Trp Gly Gly Leu Asp Thr Leu Pro Pro Gly Thr Thr 85 90 95 gta ttg gat gtg ggt tgc ggc att ggc ggt agc agt cgc att ctc gcc Val Leu Asp Val Gly Cys Gly Ile Gly Gly Ser Ser Arg Ile Leu Ala 100 105 110 120 125 gtg aaa ggt tat ggt ttt aac gtt acc ggc atc acc att agt ccc caa cag Lys Asp Tyr Gly Phe Asn Val Thr Gly Ile Thr Ile Ser Pro Gln Gln 115 120 125 gtg aaa cgg gcg acg gaa tta act cct ccc gat gtg acg gcc aag ttt Val Lys Arg Ala Thr Glu Leu Thr Pro Pro Asp Val Thr Ala Lys Phe 130 135 140 gcg gtg gac gat gct atg gct ttg tct ttt cct gac ggt agt ttc gac Ala Val Asp Asp Ala Met Ala Leu Ser Phe Pro Asp Gly Ser Phe Asp 145 150 155 160 gta gtt tgg tcg gtg gaa gca gga gcc cc ac atg cct gac aaa gct gtg Val Val Trp Ser Val Glu Ala Gly Pro His Met Pro Asp Lys Ala Val Trb Ser Val Glu Ala Gly Pro His Met Pro Asp Lys Ala Val 180 185 190 gtg gcg gat tgg aat caa cgg gac gat cgc caa gtg ccc ctc act tc Val Ala Asp Trp Asn Gln Arg Asp Asp Arg Gln Val Pro Leu Asn Phe 200 tgg gaa aaa cca gtg atg cga gc caa ctg ttg gat caa tgg cc cac ct Cac ctc Trp Glu Lys Pro Val Met Arg Gln Leu Leu Asp Gln Trp Ser His Pro 210 225 230 235 255	•																	
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gta ttg gat ggt ttt aac gtt acc ggc atc acc atc atc agt ccc caa cag ltt lys Asp Tyr Gly Phe Ash Ala Leu Asp Asp Ala Met Ala Lys Glu Leu Arg Val Glu Ala Rys Phe Ala Lys Glu Leu Leu Arg Val Clu Ala Rys Glu Leu Leu Arg Val Val Lys Glu Leu Leu Arg Val Ala Asp Tyr Sing gag as acc acc acc agg gac acc acc acc acc agg gac gat ttg gac gac gac gat ccc cac acc agg gac gac gac gac gac gac																		
gtg gtg gac gat gct atg gct ttg tct ttc ccc gac ggt agg ttc gac agg gtg gg		٠																
gta ttg gat gtg ggt tgc ggc att ggc ggt agc agt cgc att ctc gcc Val Leu Asp Val Gly Cys Gly Ile Gly Gly Ser Ser Arg Ile Leu Ala 100 105 110 110 110 110 110 110 110 110	Δla	· 1v	π_+	Δla	Gln	ጥጉኮ	G] v	Glv	T,eu	Asp	ጥhr	T. <u>e</u> ը	Pro	Pro	G] v	Thr	Thr	
Val Leu Asp Val Gly Cys Gly Ile Gly Gly Ser Ser Arg Ile Leu Ala 100 105 105 384 aaa gat tat ggt ttt aac gtt acc ggc atc acc att agt ccc caa cag 384 Lys Asp Tyr Gly Phe Asn Val Thr Gly Ile Thr Ile Ser Pro Gln Gln 115 120 125 gtg aaa cgg gcg acg gaa tta act cct ccc gat gtg acg gcc aag ttt 432 Val Lys Arg Ala Thr Glu Leu Thr Pro Pro Asp Val Thr Ala Lys Phe 130 135 140 gcg gtg gac gat gct atg gct ttg tct ttt cct gac ggt agt ttc gac Ala Val Asp Asp Ala Met Ala Leu Ser Phe Pro Asp Gly Ser Phe Asp 145 150 155 160 gta gtt tgg tcg gtg gaa gca gca gcg ccc cac atg cct gac aaa gct gtg Val Val Trp Ser Val Glu Ala Gly Pro His Met Pro Asp Lys Ala Val 165 170 175 ttt gcc aag gaa tta ctg cgg gtc gtg aaa cca ggg ggc att ctg gtg Phe Ala Lys Glu Leu Leu Arg Val Val Lys Pro Gly Gly Ile Leu Val 180 185 199 gtg gcg gat tgg aat caa cgg gac gat cgc caa gtg ccc ctc aac ttc Val Ala Asp Trp Asn Gln Arg Asp Asp Arg Gln Val Pro Leu Asn Phe 195 200 205 tgg gaa aaa cca gtg atg cac ac ctg ttg gat caa ttg gcc cac ctc Ala Pro Leu Asn Phe 210 215 230 230 240 ttg gtg gag ggc cag gtg act act act gct gat act ttg gat gad gcc acc ggt ttg gcc ttt gcc agc act ttg gcd gcc ttt gcc agc act gat gcc acc ctc Ala Pro Ala Phe Ala Ser Ile Glu Gly Phe Ala Glu Asn Leu Glu Ala Thr Gly 225 230 240 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccc ctc 768 Leu Val Glu Gly Gln Val Thr Thr Ala Asp Trp Thr Val Pro Thr Leu	AIG	L 1.	1 C C	ита	GIII		GLY	Gry	БСС	АЗР		БСС	110	110	CTY		****	
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Lys Asp Tyr Gly Phe Asn Val Thr Gly Ile Thr Ile Ser Pro Gln Gln 115 120 125	vai		Jeu	MSD		GIY	Cys	GIY	116		GLY	261	261	Arg		Бей	AIG	
Lys Asp Tyr Gly Phe Asn Val Thr Gly Ile Thr Ile Ser Pro Gln Gln 115 gtg aaa cgg gcg acg gaa tta act cct ccc gat gtg acg gcc aag ttt Val Lys Arg Ala Thr Glu Leu Thr Pro Pro Asp Val Thr Ala Lys Phe 130 gcg gtg gac gat gct atg gct ttg tct ttt cct gac ggt agt ttc gac Ala Val Asp Asp Ala Met Ala Leu Ser Phe Pro Asp Gly Ser Phe Asp 145 gta gtt tgg tcg gtg gaa gca gca gcc cac atg cct gac aaa gct gtg Val Val Trp Ser Val Glu Ala Gly Pro His Met Pro Asp Lys Ala Val 165 ttt gcc aag gaa tta ctg cgg gtc gtg aaa cca ggg gcc att ctg gtg Phe Ala Lys Glu Leu Leu Arg Val Val Lys Pro Gly Gly Ile Leu Val 180 gtg gcg gat tgg aat caa cgg gac gat cgc caa gtg ccc ctc aac ttc Val Ala Asp Trp Asn Gln Arg Asp Asp Arg Gln Val Pro Leu Asn Phe 195 tgg gaa aaa cca gtg atg cga ggt ttt gcg gaa aat ttg gaa gcc acg ggt gcc ttt gcc agc att gaa ggt ttt gcg gaa aat ttg gaa gcc acg ggt gcc ttt gcc agc att gaa ggt ttt gcg gaa aat ttg gaa gcc acg ggt att gg ag ggc cag gtg act act gct gtg gaa att gg aact gcc cac ggt gcc ttt gcc agc att gaa ggt ttt gcg gaa aat ttg gaa gcc acg ggt ttg gag gag ggc cag gtg act act gct gat tgg act gta ccc ccc 170 gcc ttt gcc agc att gaa ggt ttt gcg gaa aat ttg gaa gcc acg ggt ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 170 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 170 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 170 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 170 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 170 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 170 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 170 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 170 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 170 Table Thr Thr Ala Asp Trp Thr Val Pro Thr Leu																		
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gtg aaa cgg gcg acg gaa tta act cct ccc gat gtg acg gcc aag ttt 432 Val Lys Arg Ala Thr Glu Leu Thr Pro Pro Asp Val Thr Ala Lys Phe 130 gcg gtg gac gat gct atg gct ttg tct ttt cct gac ggt agt ttc gac Ala Val Asp Asp Ala Met Ala Leu Ser Phe Pro Asp Gly Ser Phe Asp 145 gta gtt tgg tcg gtg gaa gca gca gcg gcc cac atg cct gac aaa gct gtg Val Val Trp Ser Val Glu Ala Gly Pro His Met Pro Asp Lys Ala Val 165 ttt gcc aag gaa tta ctg cgg gtc gtg gaa ac cca ggg ggc att ctg gtg Ser Phe Ala Lys Glu Leu Leu Arg Val Val Lys Pro Gly Gly Ile Leu Val 180 gtg gcg gat tgg aat caa cgg gac gat cgc caa gtg ccc ctc aac ttc Val Ala Asp Trp Asn Gln Arg Asp Asp Arg Gln Val Pro Leu Asn Phe 200 tgg gaa aaa cca gtg atg cga cga ctt gcg gaa aat ttg gaa gcc acg gft 720 gcc ttt gcc agc att gaa ggt ttt gcg gaa aat ttg gaa gcc acg ggt 720 gcc ttt gcc agc att gaa ggt ttt gcg gaa aat ttg gaa gcc acg ggt 720 Ala Phe Ala Ser Ile Glu Gly Phe Ala Glu Asn Leu Glu Ala Thr Gly 230 ttg gtg gag gac cag gtg act act gct gat tgg act gta ccg acc ctc 768 Leu Val Glu Glu Gly Gln Val Thr Thr Ala Asp Trp Thr Val Pro Thr Leu	Lys	; <i>P</i>	Asp	_	GIA	Pne	Asn	vai		GIY	TIE	Thr	тте		Pro	GIN	GIII	
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gcg gtg gac gat gat gat Ala Nap Asp Ala Net Ala Leu Ser Phe Pro Asp Gly Ser Phe Asp 150 480 gta gtt tgg tcg gtg gaa gca gca gca gca gca cca atg cct gac aaa gct gtg Val Val Trp Ser Val Glu Ala Gly Pro His Net Pro Asp Lys Ala Val 165 528 ttt gcc aag gaa tta ctg ccg gtg gaa tta ctg ccg gtc Phe Ala Lys Glu Leu Leu Arg Val 185 180 180 180 576 gtg gcg gat tgg aat caa cgg gcg gcc gat gcg gcg gcg gcg gcg gcg gcg gcg gcg gc	Val		_	Arg	Ala	Thr	Glu		Thr	Pro	Pro	Asp		Thr	Ala	Lys	Phe	
Ala Val Asp Asp Ala Met Ala Leu Ser Phe Pro Asp Gly Ser Phe Asp 160 gta gtt tgg tcg gtg gaa gca ggg ccc cac atg cct gac aaa gct gtg 528 Val Val Trp Ser Val Glu Ala Gly Pro His Met Pro Asp Lys Ala Val 165 ttt gcc aag gaa tta ctg cgg gtc gtg aaa cca ggg ggc att ctg gtg 576 Phe Ala Lys Glu Leu Leu Arg Val Val Lys Pro Gly Gly Ile Leu Val 180 gtg gcg gat tgg aat caa cgg gac gat cgc caa gtg ccc ctc aac ttc 624 Val Ala Asp Trp Asn Gln Arg Asp Asp Arg Gln Val Pro Leu Asn Phe 195 tgg gaa aaa cca gtg atg cga caa ctg ttg gat caa tgg tcc cac ctt 672 Trp Glu Lys Pro Val Met Arg Gln Leu Leu Asp Gln Trp Ser His Pro 210 gcc ttt gcc agc att gaa ggt ttt gcg gaa aat ttg gaa gcc acg ggt 720 Ala Phe Ala Ser Ile Glu Gly Phe Ala Glu Asn Leu Glu Ala Thr Gly 235 ttg gtg gag ggc cag gtg act act gct gat tgg act gt ccg acc ctc 768 Leu Val Glu Gly Gln Val Thr Thr Ala Asp Trp Thr Val Pro Thr Leu		_	.50					133					140					
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gta gtt tgg tcg gtg gaa gca ggg ccc cac atg cct gac aaa gct gtg Val Val Trp Ser Val Glu Ala Gly Pro His Met Pro Asp Lys Ala Val 165			7al	Asp	Asp	Ala		Ala	Leu	Ser	Phe		Asp	Ģlу	Ser	Phe		
Val Val Trp Ser Val Glu Ala Gly Pro His Met Pro Asp Lys Ala Val 165 165 20 <	145)					150					133					160	
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ttt gcc aag gaa tta ctg cgg gtc gtg aaa cca ggg ggc att ctg gtg Phe Ala Lys Glu Leu Leu Arg Val Val Lys Pro Gly Gly Ile Leu Val 180	Val	. V	/al	Trp	Ser		Glu	Ala	Gly	Pro		Met	Pro	Asp	Lys		Val	
Phe Ala Lys Glu Leu Leu Arg Val Val Lys Pro Gly Gly Ile Leu Val 180						165	•				170					1/5		
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gtg gcg gat tgg aat caa cgg gac gat cgc caa gtg ccc ctc aac ttc Val Ala Asp Trp Asn Gln Arg Asp Asp Arg Gln Val Pro Leu Asn Phe 195 200 205 tgg gaa aaa cca gtg atg cga caa ctg ttg gat caa tgg tcc cac cct 672 Trp Glu Lys Pro Val Met Arg Gln Leu Leu Asp Gln Trp Ser His Pro 215 220 gcc ttt gcc agc att gaa ggt ttt gcg gaa aat ttg gaa gcc acg ggt 720 Ala Phe Ala Ser Ile Glu Gly Phe Ala Glu Asn Leu Glu Ala Thr Gly 235 235 240 ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 768 Leu Val Glu Gly Gln Val Thr Thr Ala Asp Trp Thr Val Pro Thr Leu	Phe	P	Ala	Lys		Leu	Leu	Arg	Val		Lys	Pro	Gly	Gly		Leu	Val	
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ttg gtg gag ggc cag gtg act act gct gat tgg act gta ccg acc ctc 768 Leu Val Glu Gly Gln Val Thr Thr Ala Asp Trp Thr Val Pro Thr Leu	Ala	F	he	Ala	Ser	Ile	Glu	Gly	Phe	Ala	Glu	Asn	Leu	Glu	Ala	Thr	Gly	
Leu Val Glu Gly Gln Val Thr Thr Ala Asp Trp Thr Val Pro Thr Leu	225						230					235					240	
Leu Val Glu Gly Gln Val Thr Thr Ala Asp Trp Thr Val Pro Thr Leu	ttg	r g	ıtg	gag	ggc	cag	gtg	act	act	gct	gat	tgg	act	gta	ccg	acc	ctc	768
245 250 255																		
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Trp Leu Gln Tyr Gly Ile Arg Gly Phe Ile Lys Ser Val Arg Glu Val 275 280 285 ccg act att tta ttg atg cgc ctt gcc ttt ggg gta gga ctt tgt cgc 912 Pro Thr Ile Leu Leu Met Arg Leu Ala Phe Gly Val Gly Leu Cys Arg 295 ttc ggt atg ttc aaa gca gtg cga aaa aac gcc act caa gct taa 957 Phe Gly Met Phe Lys Ala Val Arg Lys Asn Ala Thr Gln Ala 305 310 <210> 2 <211> 318 <212> PRT <213> Synechocystis PCC6803 Met Pro Glu Tyr Leu Leu Pro Ala Gly Leu Ile Ser Leu Ser Leu 5 10 Ala Ile Ala Ala Gly Leu Tyr Leu Leu Thr Ala Arg Gly Tyr Gln Ser 25 Ser Asp Ser Val Ala Asn Ala Tyr Asp Gln Trp Thr Glu Asp Gly Ile 40 Leu Glu Tyr Tyr Trp Gly Asp His Ile His Leu Gly His Tyr Gly Asp 55 Pro Pro Val Ala Lys Asp Phe Ile Gln Ser Lys Ile Asp Phe Val His ·65 70 75 Ala Met Ala Gln Trp Gly Gly Leu Asp Thr Leu Pro Pro Gly Thr Thr 85 Val Leu Asp Val Gly Cys Gly Ile Gly Gly Ser Ser Arg Ile Leu Ala 100 105 Lys Asp Tyr Gly Phe Asn Val Thr Gly Ile Thr Ile Ser Pro Gln Gln 115 120 125 Val Lys Arg Ala Thr Glu Leu Thr Pro Pro Asp Val Thr Ala Lys Phe 135 Ala Val Asp Asp Ala Met Ala Leu Ser Phe Pro Asp Gly Ser Phe Asp

155

160

150

Phe Ala Lys Glu Leu Leu Arg Val Val Lys Pro Gly Gly Ile Leu Val 180 185 190 Val Ala Asp. Trp Asn Gln Arg Asp Asp Arg Gln Val Pro Leu Asn Phe 195 200 Trp Glu Lys Pro Val Met Arg Gln Leu Leu Asp Gln Trp Ser His Pro 215 220 Ala Phe Ala Ser Ile Glu Gly Phe Ala Glu Asn Leu Glu Ala Thr Gly 230 235 Leu Val Glu Gly Gln Val Thr Thr Ala Asp Trp Thr Val Pro Thr Leu 245 250 255 Pro Ala Trp Leu Asp Thr Ile Trp Gln Gly Ile Ile Arg Pro Gln Gly 260 265 Trp Leu Gln Tyr Gly Ile Arg Gly Phe Ile Lys Ser Val Arg Glu Val 275 280 Pro Thr Ile Leu Leu Met Arg Leu Ala Phe Gly Val Gly Leu Cys Arg 295 Phe Gly Met Phe Lys Ala Val Arg Lys Asn Ala Thr Gln Ala 310 315 <210> 3 <211> 974 <212> DNA <213> Synechocystis PCC6803 <220> <221> CDS <222> (7)..(963) <400> 3 ggatee atg eee gag tat ttg ett etg eee get gge eta att tee ete 48 Met Pro Glu Tyr Leu Leu Pro Ala Gly Leu Ile Ser Leu tcc ctg gcg atc gcc gct gga ctg tat ctc cta act gcc cgg ggc tat Ser Leu Ala Ile Ala Ala Gly Leu Tyr Leu Leu Thr Ala Arg Gly Tyr 15 20 25

Val Val Trp Ser Val Glu Ala Gly Pro His Met Pro Asp Lys Ala Val

165

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						•											
	_		_	-		gtg Val	-		_								144
G.	T11	Ser	261	Asp	35	vai	AIA	ASII	ALG	40	nsp	GIII	ııp	1111	45	дем	
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G.	тЪ	TIE	ьеи	50	тУт	Tyr	ıιρ	GIY	55	nis	116	HTS	neu	60	nis	ıyı	
																	0.4.0
_	-	_	_			gcc Ala	_	_									240
	- y	TID _D	65	110	V 4.1	*****	2,5	70	1110		0111	501	75		1102		
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						cag Gln											200
		80					85	_	_		_	90				_	
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P		160	val	val	тър	Ser	165	GIU.	WIG	GTĀ	F1.0	170	net	51.0	ASD	ьys	
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	75				-2-	180			5		185	-3 -		2	2	190	
C	ta	ata	ata	aca	ast	tgg	22+	~==	caa	~ ~ ~	a = t	cac	C 2 2	ata	ccc	ctc	624
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t	aa	atto	gegga	atc o	<b>c</b>												974
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s	er	Asp	Ser	Val	Ala	Asn	Ala	Tyr	Asp	Gln	Trp	Thr	Glu	Asp	Gly	Ile	

Leu Glu Tyr Tyr Trp Gly Asp His Ile His Leu Gly His Tyr Gly Asp

Pro Pro Val Ala Lys Asp Phe Ile Gln Ser Lys Ile Asp Phe Val His

. Val Leu Asp Val Gly Cys Gly Ile Gly Gly Ser Ser Arg Ile Leu Ala 100 105 110

Lys Asp Tyr Gly Phe Asn Val Thr Gly Ile Thr Ile Ser Pro Gln Gln
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Ile Leu Glu Tyr Tyr Trp Gly Asp His Ile His Leu Gly His Tyr Gly
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	-			210			🕶	1	215		—			220				
					ggc												723	
		T	77-7	C3.,	C111	Cln	T/all	ጥኮኍ	ጥኮァ	Ala	Asn	Trans	Thr	Val	Pro	Thr		

*:* 

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Met Ala Ala Gly  Asp Ser Val Ala  Clu  Glu Tyr Tyr Try  35  Pro Val Ala Lys  50  Met Ala Gln Try  65	5 Asn Ala  O Gly Asp  S Asp Phe  O Gly Gly  70  Cys Gly  85  Asn Val	Tyr Asp His Ile 40 Ile Gln 55 Leu Asp Ile Gly	Gln Trp 3 25 His Leu 0 Ser Lys 3 Thr Leu 1 Gly Ser 8 90	Thr Glu Gly His Ile Asp 60 Pro Pro 75 Ser Arg	Asp Gly 30 Tyr Gly 45 Phe Val Gly Thr	15 Ile Let Asp Pro His Ala Thr Va: 86 Ala Ly: 95	

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